

Amendments to the Specification:

Please add the following paragraphs on page 4, between lines 4 and 5:

According to one aspect of the present invention, there is provided a method for co-modelling a packet network operating over an optical network, the method comprising the steps of: (1) generating a basic packet capacity based on a simulated packet network comprising packet network topology information and packet traffic information and (2) generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity.

According to another aspect of the present invention, there is provided a method for co-modelling and analyzing a packet network operating over an optical network, the method comprising the steps of: (1) generating a basic packet capacity based on a simulated packet network comprising packet network topology information and packet traffic information; (2) generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity; and (3) performing analysis on the simulated packet transport network.

According to still another aspect of the present invention, there is provided a method for analyzing survivability of a simulated packet transport network comprising a packet network and an optical network, wherein the packet network is operating over the optical network, wherein an optical failure is known to occur within the simulated packet transport network and wherein packet link protection is performed in the packet network, the method comprising the steps of: establishing at least one back-up packet traffic flow tunnel for each packet link in the simulated packet transport network; performing a series of steps, as follows, for each optical link in the optical network; A. taking an optical link out of service; B. performing a series of steps, as follows, in a nested process for each packet link affected by the optical failure; i. switching all packet traffic flow on the affected packet link to an at least one back-up packet traffic flow tunnel; ii. incrementing capacity of each packet link traversed by the at least one back-up packet traffic flow tunnel; and iii. incrementing capacity of each optical link traversed by an optical connection supporting the packet link; and C. restoring initial capacity values; and summing packet link capacity requirements and optical link capacity requirements.

According to yet another aspect of the present invention, there is provided a method for analyzing survivability of a simulated packet transport network comprising a packet network and an optical network, wherein the packet network is operating over the optical network, wherein an optical failure is known to occur within the simulated packet transport network and wherein packet link protection is performed in the optical network, the method comprising the steps of: establishing at least one protection tunnel for each optical connection in the simulated packet transport network; performing a series of steps, as follows, for each optical link in the optical network; A. taking an optical link out of service; B. switching all affected optical connections to an at least one protection tunnel; C. incrementing capacity of each optical link traversed by the at least one protection tunnel; and D. restoring initial capacity values; and summing the optical link capacity requirements.

According to a further aspect of the present invention, there is provided a computer useable medium having computer readable program code means for co-modelling a packet network operating over an optical network, the computer readable program code means comprising: (1) code means for generating a basic packet capacity based on a simulated packet network comprising packet network topology information and packet traffic information; and (2) code means for generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity.

According to yet a further aspect of the present invention, there is provided a computer useable medium having computer readable program code means for co-modelling and analyzing a packet network operating over an optical network, the computer readable program code means comprising: (1) code means for generating a basic packet capacity based on a simulated packet network comprising packet network topology information and packet traffic information; (2) code means for generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity; and (3) code means for performing analysis on the simulated packet transport network.

According to still a further aspect of the present invention, there is provided a computer useable medium having computer readable program code means for analyzing survivability of a simulated packet transport network comprising a packet network and an optical network,

wherein the packet network is operating over the optical network, wherein an optical failure is known to occur within the simulated packet transport network and wherein packet link protection is performed in the packet network, the computer readable program code means comprising: code means for establishing at least one back-up packet traffic flow tunnel for each packet link in the simulated packet transport network; code means for performing a series of steps, as follows, for each optical link in the optical network; A. taking an optical link out of service; B. performing a series of steps, as follows, in a nested process for each packet link affected by the optical failure; i. switching all packet traffic flow on the affected packet link to an at least one back-up packet traffic flow tunnel; ii. incrementing capacity of each packet link traversed by the at least one back-up packet traffic flow tunnel; and iii. incrementing capacity of each optical link traversed by an optical connection supporting the packet link; and C. restoring the initial capacity values; and code means for summing packet link capacity requirements and optical link capacity requirements.

According to another aspect of the present invention, there is provided a computer useable medium having computer readable program code means for analyzing survivability of a simulated packet transport network comprising a packet network and an optical network, wherein the packet network is operating over the optical network, wherein an optical failure is known to occur within the simulated packet transport network and wherein packet link protection is performed in the optical network, the computer readable program code means comprising: code means for establishing at least one protection tunnel for each optical connection in the simulated packet transport network; code means for performing a series of steps, as follows, for each optical link in the optical network; A. taking an optical link out of service; B. switching all affected optical connections to an at least one protection tunnel; C. incrementing capacity of each optical link traversed by the at least one protection tunnel; and D. restoring initial capacity values; and code means for summing the optical link capacity requirements.